

**Patent Claims**

1. Electromigration test apparatus having:  
a direct-current source;  
5 an AC voltage source;  
a circuit having at least one conductive structure to be tested, which is electrically coupled to the direct-current source and the AC voltage source;  
and  
10 a measuring device, which is set up in such a way that it detects an electrical parameter which is indicative of electromigration in the conductive structure to be tested;  
the AC voltage source being set up in such a way  
15 that it exposes the conductive structure to be tested to an alternating current, independently of a direct current of the direct-current source and thus heats the conductive structure to be tested to a predetermined temperature that can be set.  
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2. Apparatus according to Claim 1, the electrical parameter being a resistance of the conductive structure to be tested.
- 25 3. Apparatus according to Claim 1 or 2, which furthermore has an evaluation unit for determining an electrical power, the evaluation unit having a voltage measuring device and a current measuring device which are implemented in the circuit in such a way that, by means thereof, a root-mean-square current through the conductive structure to be tested and a root-mean-square voltage across the conductive structure to be tested can be detected.  
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- 35 4. Apparatus according to one of Claims 1 to 3, a control device being provided, which is set up in such a way that the control device controls the AC voltage source in such a way that the temperature

of the conductive structure to be tested can be kept constant.

5. Apparatus according to one of Claims 1 to 4, the conductive structure to be tested being arranged on or in a semiconductor wafer.
10. Apparatus according to one of Claims 1 to 5, the alternating-current source and the direct-current source being integrated in a pulse generator.
15. Apparatus according to one of Claims 1 to 6, which furthermore has a heating furnace set up in such a way that it heats the conductive structure to be tested.
20. Method for testing a conductive structure for electromigration, having the following steps: electrical coupling of a conductive structure to be tested to an electrical circuit electrically coupled to a direct-current source and an alternating-current source; supply of the conductive structure to be tested with a direct current which causes the electromigration within the conductive structure to be tested;
25. heating of the conductive structure to be tested by means of the alternating current, the alternating current being independent of a direct current, which direct current brings about the electromigration within the conductive structure to be tested; and
30. detection of an electrical parameter which is indicative of the electromigration within the conductive structure to be tested.
35. Method according to Claim 8, a resistance of the conductive structure to be tested being detected as the electrical parameter.

10. Method according to Claim 8 or 9, in which, as  
further steps, a root-mean-square current in the  
5 conductive structure to be tested and a root-mean-  
square voltage across the conductive structure to  
be tested are detected and an electrical power is  
determined therefrom.
11. Method according to one of Claims 8 to 10, the  
10 temperature of the conductive structure to be  
tested being regulated to a constant value by  
means of the evaluation unit.
12. Method according to one of Claims 8 to 11, the  
15 conductive structure to be tested being formed on  
or in a semiconductor wafer.